

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
9 June 2005 (09.06.2005)

PCT

(10) International Publication Number
WO 2005/052146 A2

(51) International Patent Classification⁷: **C12N 9/00**

A., H. [NL/NL]; Laan van Wateringeveld 1418, NL-2671 DG The Hague (NL). **VAN MARREWILJK, Leo; ***

(21) International Application Number:
PCT/US2004/039066

(74) **Agent: MACKNIGHT, Kamrin, T.**; Genencor International, Inc., 925 Page Mill Road, Palo Alto, CA 94304 (US).

(22) International Filing Date:
19 November 2004 (19.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/523,609 19 November 2003 (19.11.2003) US

(81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(71) **Applicants** (*for all designated States except US*): **GENENCOR INTERNATIONAL, INC.** [US/US]; 925 Page Mill Road, Palo Alto, CA 94304 (US). **THE PROCTER & GAMBLE COMPANY** [US/US]; One Procter & Gamble Plaza, Cincinnati, 36 45202 (US).

(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) **Inventors; and**

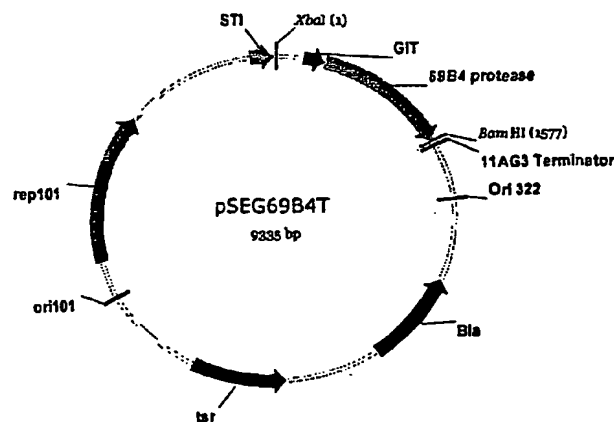
(75) **Inventors/Applicants** (*for US only*): **JONES, Brian, Edward** [GB/NL]; Gravin Juliana van Stolberglaan 24, NL-2263 VA Leidschendam (NL). **KOLKMAN, Marc** [NL/NL]; Linnaeshof 25, NL-2341 PA Oegstgeest (NL). **LEEFLANG, Chris** [NL/NL]; Granaathorst 345, NL-2592 SZ The Hague (NL). **OH, Hiroshi** [JP/US]; 8541 Meadow Bluff Court, Cincinnati, OH 45249 (US). **POULOSE, Ayrookaran, J.** [US/US]; 2848 Wakefield Drive, Belmont, 5 94002 (US). **SADLOWSKI, Eugene, S.** [US/US]; 9980 Pebbleknoll Drive, Cincinnati, OH 45252 (US). **SHAW, Andrew** [GB/US]; 2560 Hyde Street, San Francisco, 5 94109 (US). **VAN DER KLEIJ, Wilhelmus,**

Published:

— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) **Title:** SERINE PROTEASES, NUCLEIC ACIDS ENCODING SERINE ENZYMES AND VECTORS AND HOST CELLS INCORPORATING SAME



(57) **Abstract:** The present invention provides novel serine proteases, novel genetic material encoding these enzymes, and proteolytic proteins obtained from Micrococccineae spp., including but not limited to Cellulomonas spp. and variant proteins developed therefrom. In particular, the present invention provides protease compositions obtained from a Cellulomonas spp, DNA encoding the protease, vectors comprising the DNA encoding the protease, host cells transformed with the vector DNA, and an enzyme produced by the host cells. The present invention also provides cleaning compositions (*e.g.*, detergent compositions), animal feed compositions, and textile and leather processing compositions comprising protease(s) obtained from a Micrococccineae spp., including but not limited to Cellulomonas spp. In alternative embodiments, the present invention provides mutant (*i.e.*, variant) proteases derived from the wild-type proteases described herein. These mutant proteases also find use in numerous applications.

WO 2005/052146 A2